



DuPont Specialty Chemicals

June 19, 1997

FEDX

Ms. Diane Schott, RPM (3HW61) - Four Copies  
USEPA  
841 Chestnut Building  
Philadelphia, PA 19107-4431

RE: DED002348845, Code 28

**DUPONT SEAFORD NYLON PLANT**  
**RCRA FACILITY INVESTIGATION (RFI)**  
**ADDITIONAL PLANT PRODUCTION WELL DATA**

Dear Ms. Schott:

As promised during our meeting at the Seaford Nylon Plant on May 6, 1997, attached please find additional monitoring data for the Plant production wells and drinking water supply. This data confirms that drinking water at the Seaford Nylon Plant is in compliance with the Federal Safe Drinking Water Act standards and is safe for consumption by site personnel.

The data consists of the following:

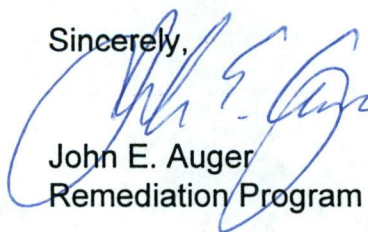
1. Annual, routine drinking water supply analysis conducted by the Delaware Division of Public Health for the years 1991 to 1996.
2. Annual drinking water supply VOC analysis for the years 1994, 1995, 1996, and 1997 by EPA method 502.2. DuPont proactively obtained these samples in addition to the annual data gathered by the Delaware Department of Public Health. Note there has been no detection of VOC's, other than the normal by products of water treatment chlorination (i.e. Chloroform, Dibromochloromethane and Bromochloromethane).

3. Individual production well analysis for inorganics for all production well (i.e. 2A, 8, 9, 11, and 12) for the years 1996 and 1997. There are no exceedances of Maximum Contaminant Levels (MCLs) for those constituents for which MCL's have been promulgated under the Safe Drinking Water Act and were analyzed for.

DuPont remains committed to ensuring that the Seaford Plant drinking water supply is properly monitored and maintained safe for human consumption.

Should you have any additional questions concerning the revision of the data table, please call Mr. Matthew Brill at 302 892-7576 or Mr. Michael Terry at 302 629-1221.

Sincerely,



John E. Auger  
Remediation Program Manager

cc: A. Rittenberg, DNREC (2 copies)  
W. Murphy, DERS  
M. Brill, DERS  
P. Meitner, DuPont Legal  
B. Davis, DuPont Seaford  
M. Terry, DuPont Seaford



# **ATTACHMENT 1**

**Drinking water supply analysis conducted by the Delaware Division of  
Public Health for the years 1991 to 1996.**

DuPont Seaford  
DE Division of Public Health  
Potable Water Sampling Data  
1-1-90 To 4-30-97

BARBARA E. ASHBY  
*Environmental Health Specialist II*  
DIVISION OF PUBLIC HEALTH



DELAWARE HEALTH  
AND SOCIAL SERVICES

(302) 739-5410  
FAX # (302) 739-3839  
Office of Drinking Water  
Jesse Cooper Building  
P. O. Box 637  
Dover, Delaware 19903

mg/l

Nil rate

From

Sodium

24  
A. Kalinitsky

24

Inside

Chanda

10/10/10

2-1-84

Cynde

[illegible]

mg/L

Arsenic Barium Cadmium Chromium Lead Mercury Selenium Beryllium Nickel Thallium Antimony

J. DUPONT(DE00000296) TRACEMETAL SAMPLES FOR 01/01/90 To 04/30/97

Op Date	Date Recd	Slip#	Sampled By	Location	Point	Type	As	Ba	Cd	Cr	Pb	Hg	Se	Be	Ni	Tl	Sb
'28/95	01/30/96	87124	ASHBY	GUARD HOUSE	BS	ROUTINE	<0.0100	<0.3000	<0.0010	<0.0050	<0.0050	<0.0005	<0.0100	0.0009	0.0050	<0.0008	<0.0020

MCL (in mg/L): 0.004 0.1

E.I. DUPONT

(DE0000296)

VOC SAMPLES FOR 01/01/90 To 04/30/97

Results in  $\mu\text{g/L}$

AMP DATE	DATE RECD	SLIP#	SAMPLED BY	LOCATION	POINT	TYPE	DETECTED RESULTS
6/10/93	07/26/93	68673	STROUSE	GUARD HOUSE	BS	ROUTINE	ND = No Detect
8/22/96	04/25/97	90158	BROOKS	GUARD HOUSE	BS	ROUTINE	BDCM 0.8700 BFM 0.8800 CDBM 1.5000

Normal Poly-Products of Chlorination { BDCM = Bromodichloromethane  
BFM = Bromoform  
CDBM = Dibromochloromethane

.I. DUPONT

(DE0000296)

SOC SAMPLES FOR 01/01/90 To 04/30/97

MP DATE	DATE RECD	SLIP#	SAMPLED BY	LOCATION	POINT	TYPE	DETECTED RESULTS
/08/96	06/19/96	89983	ASHBY		BS-DEP (505)	ROUTINE	ND No Detect



E.I. DUPONT

## BACTERIOLOGICAL SAMPLES FOR 01/01/96 To 04/30/97

SAMPLE DATE	DATE RECD	SLIP NO	SAMPLED BY	LOCATION	SAMPLE POINT	SAMPLE TYPE	RESULT	CL RES
03/10/97	03/27/97	970310705A	NOT REPORTED	STAPLE OFFICE MENS ROOM	MENS RM.	ROUTINE	ABSENT	0.00
03/10/97	03/27/97	970310704A	NOT REPORTED	CAFETERIA SINK	CAFETERIA SINK	ROUTINE	ABSENT	0.00
03/10/97	03/27/97	970310703A	NOT REPORTED	HE BALER	HE BALER	ROUTINE	ABSENT	0.00
03/10/97	03/27/97	970310702A	NOT REPORTED	STORES RECEIVING	STORES RECEIVING	ROUTINE	ABSENT	0.00
03/10/97	03/27/97	970310701A	NOT REPORTED	BCF 4TH FLOOR SHOP	BCF 4TH FLOOR SHOP	ROUTINE	ABSENT	0.00
02/13/97	03/04/97	970232705A	NOT REPORTED	METER RM/3RD FLOOR	METER RM/3RD FL.	ROUTINE	ABSENT	0.00
02/13/97	03/04/97	970232704A	NOT REPORTED	BCF INSPECTION	BCF INSPECTION	ROUTINE	ABSENT	0.00
02/13/97	03/04/97	970232703A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
02/13/97	03/04/97	970232702A	NOT REPORTED	WEST GATE	WEST GATE	ROUTINE	ABSENT	0.00
02/13/97	03/04/97	970232701A	NOT REPORTED	BACK SPIN	BACK SPIN	ROUTINE	ABSENT	0.00
01/24/97	02/14/97	970133205A	NOT REPORTED	NEW POLYMER LAB SINK	LAB SINK	ROUTINE	ABSENT	0.00
01/24/97	02/14/97	970133204A	NOT REPORTED	CAFETERIA SINK	CAFETERIA SINK	ROUTINE	ABSENT	0.00
01/24/97	02/14/97	970133203A	NOT REPORTED	TEXTILE PACKING FOUNTAIN	PACKING FOUNTAIN	ROUTINE	ABSENT	0.00
01/24/97	02/14/97	970133202A	NOT REPORTED	3RD FLOOR UNIT RM. SINK	UNIT RM. SINK	ROUTINE	ABSENT	0.00
01/24/97	02/14/97	970133201A	NOT REPORTED	3RD FLOOR MAINT. SINK	MAINT. SINK	ROUTINE	ABSENT	0.00
01/17/97	01/22/97	970116805A	NOT REPORTED	WEST GATE	WEST GATE	ROUTINE	ABSENT	0.00
01/17/97	01/22/97	970116804A	NOT REPORTED	DESIGN OFFICES	DESIGN OFFICES	ROUTINE	ABSENT	0.00
01/17/97	01/22/97	970116803A	NOT REPORTED	CAFETERIA SINK	CAFETERIA SINK	ROUTINE	ABSENT	0.00
01/17/97	01/22/97	970116802A	NOT REPORTED	MAIN OFFICE BS	BS	ROUTINE	ABSENT	0.00
01/17/97	01/22/97	970116801A	NOT REPORTED	SALT STRIKE	SALT STRIKE	ROUTINE	ABSENT	0.00
11/22/96	01/21/97	961143004A	NOT REPORTED	4TH FLOOR POLY MAINT.	4TH FLOOR	ROUTINE	ABSENT	0.00

## E.I. DUPONT

## BACTERIOLOGICAL SAMPLES

11/22/96	01/21/97	961143003A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
11/22/96	01/21/97	961143002A	NOT REPORTED	BATTERY PEN	BATTERY PEN	ROUTINE	ABSENT	0.00
11/22/96	01/21/97	961143001A	NOT REPORTED	CONSTRUCTION OFFICE	CONST. OFFICE	ROUTINE	ABSENT	0.00
09/12/96	09/16/96	960936605A	NOT REPORTED	SHIPPING	SHIPPING	ROUTINE	ABSENT	0.00
09/12/96	09/16/96	960936604A	NOT REPORTED	5TH FLOOR FLAKE	5TH FLOOR FLAKE	ROUTINE	ABSENT	0.00
09/12/96	09/16/96	960936603A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
09/12/96	09/16/96	960936602A	NOT REPORTED	TEXTILE I & P	TEXTILE I & P	ROUTINE	ABSENT	0.00
09/12/96	09/16/96	960936601A	NOT REPORTED	SALT MAINT.	SALT MAINT.	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888506A	NOT REPORTED	BATTERY ROOM	BATTERY ROOM	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888505A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888504A	NOT REPORTED	N16 MAINT.	N16 MAINT.	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888502B	NOT REPORTED	BCF REST RM	BCF REST RM	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888502A	NOT REPORTED	BCF REST RM	BCF REST RM	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888501C	NOT REPORTED	BCF 2ND FL E&T	BCF 2ND FL E&T	ROUTINE	ABSENT	0.00
08/29/96	09/23/96	960888501A	NOT REPORTED	BCF 2ND FL E&T	BCF 2ND FL E&T	ROUTINE	ABSENT	0.00
07/26/96	08/16/96	960778206A	NOT REPORTED	COUNTRY CLUB	COUNTRY CLUB	ROUTINE	ABSENT	0.00
07/26/96	08/16/96	960778205A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
07/26/96	08/16/96	960778204A	NOT REPORTED	STAPLE	STAPLE	ROUTINE	PRESENT	0.00
07/26/96	08/16/96	960778203A	NOT REPORTED	TEXTILE CP	TEXTILE CP	ROUTINE	ABSENT	0.00
07/26/96	08/16/96	960778202A	NOT REPORTED	POLY 6TH FLOOR	POLY 6TH FLOOR	ROUTINE	PRESENT	0.00
07/26/96	08/16/96	960778201A	NOT REPORTED	C-2	C-2	ROUTINE	ABSENT	0.00
06/27/96	07/18/96	960693304A	NOT REPORTED	STAPLE 6TH FLOOR	STAPLE 6TH FLOOR	ROUTINE	PRESENT	0.00
06/27/96	07/18/96	960693303A	NOT REPORTED	POLY 3RD FLOOR	POLY 3RD FLOOR	ROUTINE	PRESENT	0.00

E.I. DUPONT

## BACTERIOLOGICAL SAMPLES

01/25/96	02/12/96	960170003A	NOT REPORTED	MAIN OFFICE BLDG.	MAIN OFFICE BLDG.	ROUTINE	ABSENT	0.00
01/25/96	02/12/96	960170002A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
01/25/96	02/12/96	960170001A	NOT REPORTED	SALT STRIKE	SALT STRIKE	ROUTINE	ABSENT	0.00
01/02/96	01/22/96	951290005A	ARTESIAN	M.R. BLDG.	M.R. BLDG.	ROUTINE	ABSENT	0.00
01/02/96	01/22/96	951290004A	ARTESIAN	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.00
01/02/96	01/22/96	951290003A	ARTESIAN	TEXTILE PACKING	TEXTILE PACKING	ROUTINE	ABSENT	0.00
01/02/96	01/22/96	951290002A	ARTESIAN	3RD FLOOR P & S	3RD FLOOR P & S	ROUTINE	ABSENT	0.00
01/02/96	01/22/96	951290001A	ARTESIAN	UNIT RM.	UNIT RM.	ROUTINE	ABSENT	0.00

## E.I. DUPONT

## BACTERIOLOGICAL SAMPLES

06/27/96	07/18/96	960693302A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	PRESENT	0.00
06/27/96	07/18/96	960693301A	NOT REPORTED	MAIN OFFICE	MAIN OFFICE	ROUTINE	PRESENT	0.00
05/30/96	06/17/96	960597305A	NOT REPORTED	BCF SPIN		ROUTINE	ABSENT	0.20
05/30/96	06/17/96	960597304A	NOT REPORTED	FIBER STOCK		ROUTINE	ABSENT	0.30
05/30/96	06/17/96	960597303A	NOT REPORTED	TEXTILE PACKING		ROUTINE	ABSENT	0.00
05/30/96	06/17/96	960597302A	NOT REPORTED	CAFETERIA		ROUTINE	ABSENT	0.40
05/30/96	06/17/96	960597301A	NOT REPORTED	STEAM SHOP		ROUTINE	ABSENT	0.20
04/26/96	05/16/96	960483004A	NOT REPORTED	TEXTILE LAB		ROUTINE	ABSENT	0.00
04/26/96	05/16/96	960483003A	NOT REPORTED	CAFETERIA		ROUTINE	ABSENT	0.00
04/26/96	05/16/96	960483002A	NOT REPORTED	BCF 3RD FLOOR MAINT.		ROUTINE	ABSENT	0.10
04/26/96	05/16/96	960483001A	NOT REPORTED	DESIGN OFFICE		ROUTINE	ABSENT	0.30
03/28/96	04/26/96	960387805A	NOT REPORTED	4TH FLOOR		ROUTINE	ABSENT	0.30
03/28/96	04/26/96	960387804A	NOT REPORTED	SHIPPING		ROUTINE	ABSENT	0.30
03/28/96	04/26/96	960387803A	NOT REPORTED	STAPLE OFFICE		ROUTINE	ABSENT	0.30
03/28/96	04/26/96	960387802A	NOT REPORTED	HE BAILER		ROUTINE	ABSENT	0.30
03/28/96	04/26/96	960387801A	NOT REPORTED	CAFETERIA		ROUTINE	ABSENT	0.70
02/29/96	03/18/96	960273305A	NOT REPORTED	CAFETERIA	CAFETERIA	ROUTINE	ABSENT	0.60
02/29/96	03/18/96	960273304A	NOT REPORTED	BCF BACK SPIN	BCF BACK SPIN	ROUTINE	ABSENT	0.00
02/29/96	03/18/96	960273303A	NOT REPORTED	BCF INSPECTION	BCF INSPECTION	ROUTINE	ABSENT	0.00
02/29/96	03/18/96	960273302A	NOT REPORTED	3RD FLOOR UNIT RM	3RD FLOOR UNIT RM	ROUTINE	ABSENT	0.00
02/29/96	03/18/96	960273301A	NOT REPORTED	WEST GATE	WEST GATE	ROUTINE	ABSENT	0.30
01/25/96	02/12/96	960170005A	NOT REPORTED	WEST GATE	WEST GATE	ROUTINE	ABSENT	0.00
01/25/96	02/12/96	960170004A	NOT REPORTED	DESIGN OFFICE	DESIGN OFFICE	ROUTINE	ABSENT	0.00



## **ATTACHMENT 2**

**Drinking water supply analysis for the VOC's for the years 1994, 1995,  
1996, and 1997 by EPA method 502.2.**



1994



Artesian Laboratories, Inc.  
630 Churchmans Road  
Newark, Delaware 19702  
(302) 453-6920 • 453-6986 (FAX)

**REPORT OF ANALYSIS**

E.I. DuPont deNemours & Co.  
Seaford Site  
Fibers-Power  
Seaford, DE 19973  
Attn: Mr. John Bartels

Order #: 94-01-584  
Date: 02/04/94 16:13  
Work ID: Chlorine Room/Public DW  
Date Received: 01/27/94  
Date Completed: 02/04/94

Purchase Order: LONS71959-P Acct:1170258  
Invoice Number:

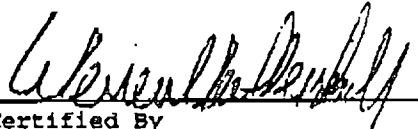
Client Code: DUP\_SEA\_DEP

**SAMPLE IDENTIFICATION**

<u>Sample</u> <u>Number</u>	<u>Sample</u> <u>Description</u>
01	Chlorine Room
02	Field Blank

<u>Sample</u> <u>Number</u>	<u>Sample</u> <u>Description</u>
03	Trip Blank

Entries under "Limit" in test results are Method Detection  
Limits (MDLs) for that test.

  
Certified By  
Warren Van Arsdall

Order # 94-01-584  
02/04/94 16:13

Page 1

TEST RESULTS BY SAMPLE

Sample: 01A Chlorine Room  
Collected: 01/27/94 11:25

Category: DW

Test Description  
Total Coliform, MF

Result Det Limit  
ABSENCE

Units By Analyzed Dt/Tm  
col/100 ml JTH 01/28/94 11:25



Order # 94-01-584

Page 2

02/04/94 16:13

TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: Drinking Water Volatiles

Method: EPA 502.2

Test Code: V502

Collected: 01/27/94 11:25

Category: DW

PARAMETER	RESULT	LIMIT	UNITS
Dichlorodifluoromethane	ND	0.50	
Chloromethane	ND	0.50	
Vinyl chloride	ND	0.40	
Bromomethane	ND	0.40	
Chloroethane	ND	0.30	
Trichlorofluoromethane	ND	0.40	
1,1-Dichloroethene	ND	0.30	
Methylene Chloride	ND	0.50	
tr-1,2-Dichloroethene	ND	0.40	
1,1-Dichloroethane	ND	0.40	
2,2-Dichloropropane	ND	0.30	
cis-1,2-Dichloroethene	ND	0.40	
Chloroform	ND	0.30	
Bromochloromethane	ND	0.20	
1,1,1-Trichloroethane	ND	0.50	
1,1-Dichloropropene	ND	0.30	
Carbon Tetrachloride	ND	0.40	
Benzene	ND	0.40	
1,2-Dichloroethane	ND	0.30	
Trichloroethene	ND	0.30	
1,2-Dichloropropane	ND	0.40	
Bromodichloromethane	ND	0.30	
Dibromomethane	ND	0.30	
cis-1,3-Dichloropropene	ND	0.30	
Toluene	ND	0.20	
tr-1,3-Dichloropropene	ND	0.30	
1,1,2-Trichloroethane	ND	0.20	
Tetrachloroethene	ND	0.40	
1,3-Dichloropropane	ND	0.40	
Dibromochloromethane	ND	0.30	
1,2-Dibromomethane	ND	0.40	
Chlorobenzene	ND	0.30	
Ethylbenzene	ND	0.30	
1,1,1,2-Tetrachloroethane	ND	0.30	
m,p-Xylene	ND	0.60	
o-Xylene	ND	0.30	
Styrene	ND	0.30	
Isopropylbenzene	ND	0.40	
Bromoform	ND	0.20	
1,1,2,2-Tetrachloroethane	ND	0.40	
1,2,3-Trichloropropane	ND	0.40	
n-Propylbenzene	ND	0.30	
Bromobenzene	ND	0.20	
1,3,5-Trimethylbenzene	ND	0.30	
2-Chlorotoluene	ND	0.40	

Order # 94-01-584

Page 3

02/04/94 16:13

TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: Drinking Water Volatiles

Method: EPA 502.2

Test Code: V502

Collected: 01/27/94 11:25

Category: DW

4-Chlorotoluene	ND	0.30
tert-Butylbenzene	ND	0.40
1,2,4-Trimethylbenzene	ND	0.50
sec-Butylbenzene	ND	0.10
4-Isopropyltoluene	ND	0.20
1,3-Dichlorobenzene	ND	0.30
1,4-Dichlorobenzene	ND	0.30
n-Butylbenzene	ND	0.40
1,2-Dichlorobenzene	ND	0.30
1,2-Dibromo-3-Chloropropane	ND	0.40
1,2,4-Trichlorobenzene	ND	0.40
Hexachlorobutadiene	ND	0.30
Naphthalene	ND	0.30
1,2,3-Trichlorobenzene	ND	0.40

## Notes and Definitions for this Report:

EXTRACTED \_\_\_\_\_  
DATE RUN 02/02/94 07:44:00  
ANALYST cd  
INSTRUMENT \_\_\_\_\_  
FILE ID \_\_\_\_\_  
CONC FACTOR 1  
UNITS ug/L

Order # 94-01-584

02/04/94 16:13

Page 4

TEST METHODOLOGIES

Total Coliform, MF

SM 9222-B

Volatile Organics, Drinking Water

EPA Method 502.2



## ORDER CUSTODY FORM

OC#:

9401544

A wholly owned subsidiary of  
Artesian Resources Corporation

Total Pages 1

Account #: 70604329

OC Name: Q14710

OC Date:

SAMPLEREPORTINVOICE

Name:

Mr. John Deputy

Accounts Payable

Company:

E.I. duPont de Nemours &amp; Co., Inc.

E.I. duPont de Nemours &amp; Co., Inc.

Address:

Seaford Site

400 Woodland Rd.

Fibers - Power

Seaford, DE 19973

Seaford, DE 19973

Mail 2 copies of invoice

Ph#:

1-629-1922

CC:

Needed Date: 5-Days

(Mail)

Pricing: 1990 Price List

P.O. #: LONG-71939-P Exp. Date 2/2/93

Project: Public Drinking Water Quarterly

Equip. Rent: N/A

Site Times: No charge when collected on Thursday. \$35.00 for special sample collection.

Matrix: DW

Disposal: T-7

Comments: Public Supply. Quarterly sampling done in April, July and October.

SAMPLES

R	Name	Location	Point	Type	Start D/T	End D/T	Tech	#Cn.	Pr.	D/T	Tech
1	Ch Room			Grab	3/27	4/25	um		EW		
2				Grab					EW		
3				Grab				2	HY		
4	Field Blk Lot#			Grab	4/27	5/20	um	1	HY		
5	Trip Blk Lot#			Grab				1	HY		
6											
7											
8											

S	Tests	Est Conc.
1	Total Coliform, MF	
2	Total Coliform, MF QC-Dup.	
3	Volatiles (502.2)	
4	Volatiles (502.2) QC	
5	Volatiles (502.2) QC	
6		
7		
8		

Received  
D/T Tech  
4/27/94 - 1810 JY  
*[Signature]*

Completion  
D/T Tech  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TOTAL TESTS: 2

REPORT DATE:

DISPOSAL D/T:

DISCLAIMER: Liability to Artesian Laboratories, Inc. not to exceed cost of analysis.

Post Office Box 15004  
Wilmington, Delaware 19850  
(302) 453-6920

Delaware Department of Public Health Approved  
Maryland Department of Public Health Certified  
Pennsylvania Department of Environmental Resources Certified

Post Office Box 935  
Dover, Delaware 19903  
(302) 734-8417



1995



Artesian Laboratories, Inc.  
630 Churchmans Road  
Newark, Delaware 19702  
(302) 453-6920 • 453-6986 (FAX)

# REPORT OF ANALYSIS

E.I. duPont deNemours & Co.  
P.O. Box 400  
Seaford, DE 19973

Attn: Mr. Michael Terry

Purchase Order: LB10-4972  
Invoice Number:

Order #: 95-10-609  
Date: 11/06/95 15:35  
Work ID: Public Drinking Water Quarter  
Date Received: 10/19/95  
Date Completed: 11/04/95

Client Code: DUP\_TERRY\_DW

CC: Mr. John Bullock  
CC: Ms. Lynn Szabo

## SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Sample Description</u>
01	Chlorine Room
02	Field Blank Lot #: 101395

<u>Sample Number</u>	<u>Sample Description</u>
03	Trip Blank Lot #: 101395

Entries under "Limit" in test results are Method Detection  
Limits (MDLs) for that test.

A handwritten signature in cursive script, reading 'Warren Van Arsdall', written over a horizontal line.

Certified By  
Warren Van Arsdall



Order # 95-10-609

11/06/95 14:42

Page 1

TEST RESULTS BY SAMPLE

Sample: 01A Chlorine Room

Category: DW

Collected: 10/19/95 12:10

Test Description

Result Det Limit

Units By Analyzed Dt/Tm

Total Coliform, MF

ABSENCE

col/100 ml EL 10/20/95 11:45

11/06/95 14:42

## TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: DW Volatiles by GC-MS

Method: EPA 524

Test Code: V\_524

Collected: 10/19/95 12:10

Category: DW

	PARAMETER	RESULT	LIMIT	UNITS
	Dichlorodifluoromethane	ND	0.50	
	Chloromethane	ND	0.50	
115	Vinyl chloride	ND	0.50	
	Bromomethane	ND	0.50	
	Chloroethane	ND	0.50	
	Trichlorofluoromethane	ND	0.50	
115	1,1-Dichloroethene	ND	0.50	
115	Methylene Chloride	ND	0.50	
115	tr-1,2-Dichloroethene	ND	0.50	
	1,1-Dichloroethane	ND	0.50	
	2,2-Dichloropropane	ND	0.50	
115	cis-1,2-Dichloroethene	ND	0.50	
	Chloroform	ND	0.50	
	Bromochloromethane	ND	0.50	
115	1,1,1-Trichloroethane	ND	0.50	
	1,1-Dichloropropene	ND	0.50	
115	Carbon Tetrachloride	ND	0.50	
115	Benzene	ND	0.50	
115	1,2-Dichloroethane	ND	0.50	
115	Trichloroethene	ND	0.50	
115	1,2-Dichloropropane	ND	0.50	
	Bromodichloromethane	ND	0.50	
	Dibromomethane	ND	0.50	
	cis-1,3-Dichloropropene	ND	0.50	
115	Toluene	ND	0.50	
	tr-1,3-Dichloropropene	ND	0.50	
115	1,1,2-Trichloroethane	ND	0.50	
115	Tetrachloroethene	ND	0.50	
	1,3-Dichloropropane	ND	0.50	
	Dibromochloromethane	ND	0.50	
	1,2-Dibromomethane	ND	0.50	
115	Chlorobenzene	ND	0.50	
115	Ethylbenzene	ND	0.50	
	1,1,1,2-Tetrachloroethane	ND	0.50	
115	m,p-Xylene	ND	0.50	
115	o-Xylene	ND	0.50	
115	Styrene	ND	0.50	
	Isopropylbenzene	ND	0.50	
	Bromoform	ND	0.50	
	1,1,2,2-Tetrachloroethane	ND	0.50	
	1,2,3-Trichloropropane	ND	0.50	
	n-Propylbenzene	ND	0.50	
	Bromobenzene	ND	0.50	
	1,3,5-Trimethylbenzene	ND	0.50	
	2-Chlorotoluene	ND	0.50	

1150 - 1000  
1150 - 1000  
Other present after  
Noted since not required!



11/06/95 14:42

TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: DW Volatiles by GC-MS

Method: EPA 524

Test Code: V\_524

Collected: 10/19/95 12:10

Category: DW

	4-Chlorotoluene	ND	0.50	
	tert-Butylbenzene	ND	0.50	
	1,2,4-Trimethylbenzene	ND	0.50	
	sec-Butylbenzene	ND	0.50	
	4-Isopropyltoluene	ND	0.50	
	1,3-Dichlorobenzene	ND	0.50	
115	1,4-Dichlorobenzene	ND	0.50	
	n-Butylbenzene	ND	0.50	
115	1,2-Dichlorobenzene	ND	0.50	
	1,2-Dibromo-3-Chloropropane	ND	0.50	
115	1,2,4-Trichlorobenzene	ND	0.50	
	Hexachlorobutadiene	ND	0.50	
	Naphthalene	ND	0.50	
	1,2,3-Trichlorobenzene	ND	0.50	

## Notes and Definitions for this Report:

EXTRACTED \_\_\_\_\_  
DATE RUN 11/03/95 04:50:00  
ANALYST ded  
INSTRUMENT \_\_\_\_\_  
FILE ID \_\_\_\_\_  
CONC FACTOR 1  
UNITS ug/L

Order # 95-10-609

11/06/95 14:42

Page 4

TEST METHODOLOGIES

Total Coliform, MF

SH 9222-B

REPORT COMMENTS

**Project Comments**

1. The VOA analysis was performed outside of hold time due to instrumental problems.



**ARTESIAN**  
LABORATORIES, INC.

ORDER CUSTODY FORM

OCH:

9510609

Total Pages 1

Account #: 70604329

Wholly owned subsidiary of  
Artesian Resources Corporation

OC Name: Q14710

OC Date:

SAMPLE

REPORT

INVOICE

Name:  
Company:  
Address:

Mr. Dave Thomas  
E.I. duPont de Nemours & Co., Inc.  
Seaford Site  
Fibers - Power  
Seaford, DE 19973

Accounts Payable  
E.I. duPont de Nemours & Co., Inc.  
400 Woodland Rd.  
Seaford, DE 19973  
Mail 2 copies of invoice

Ph#: 1-629-1922

CC: Lynn Salata, Mike Terry

Needed Date: 5-Days

(Mail)

Pricing: 1990 Price List

P.O. #: LBIO-4972

Exp. Date 12/30/95

Project: Public Drinking Water Quarterly

Equip. Rent: N/A

Site Time: No charge when collected on Thursday. \$35.00 for special sample collection.

Matrix: DW

Disposal: T-7

Comments: Public Supply. Quarterly sampling done in April, July and October.

SAMPLES

R	Name	Location	Point	Type	Start D/T	End D/T	Tech	#Cn.	Pr.	D/T	Tech
1	clonide	Rm		Grab	10/19	1210	Uv		EW		
2				Grab					EW		
3				Grab				2	HY		
4	Field Blk Lot#	10139S		Grab				1	HY		
5	Trip Blk Lot#			Grab		0900		1	HY		
6											
7											
8											

Relinquished by: Um Date/Time: 10/19/95-1745 Received by: [Signature]

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_

S	Tests	List Price
1	Total Coliform, MF	\$ 18.00
2	Total Coliform, MF QC-Dup.	--
3	Volatiles (502.2)	150.00
4	Volatiles (502.2) QC	--
5	Volatiles (502.2) QC	--
6		
7		
8		

DISCLAIMER: Liability to Artesian Laboratories, Inc. not to exceed cost of analysis.

Post Office Box 15004  
Wilmington, Delaware 19850

Delaware Department of Public Health Approved  
Maryland Department of Public Health Certified

Post Office Box 935  
Dover, Delaware 19903  
(302) 734-8417



1996





Artesian Laboratories, Inc.  
630 Churchmans Road  
Newark, Delaware 19702  
(302) 453-6920 • (302) 453-6986 (FAX)

**REPORT OF ANALYSIS**

E.I. DuPont deNemours & Co.  
Seaford Site  
Fibers-Power  
Seaford, DE 19973  
Attn: Mr. David Thomas

Order #: 96-01-701  
Date: 02/05/96 13:04  
Work 10: Annual Drinking Water Samples  
Date Received: 01/25/96  
Date Completed: 02/05/96

Purchase Order: LB10-4972  
Invoice Number: 54494

Acct: 1170258

Client Code: DUP\_SEA\_DEP

**SAMPLE IDENTIFICATION**

<u>Sample Number</u>	<u>Sample Description</u>
01	Chlorine Room
02	Field Blk Lot #: 1/22/96

<u>Sample Number</u>	<u>Sample Description</u>
03	Trip Blk Lot#: 1/22/96

Entries under "Limit" in test results are Method Detection Limits (MDLs) for that test.

  
Certified By  
Warren Van Arsdall

Order # 96-01-701  
02/05/96 12:55

Page 1

TEST RESULTS BY SAMPLE

Sample: 01A Chlorine Room  
Collected: 01/25/96 12:19

Category: DW\_PUBLIC

Test Description  
Total Coliform, MF

Result Det Limit  
ABSENCE

Units By Analyzed Dt/Tm  
col/100 ml EL 01/26/96 14:15

Sample: 01C Chlorine Room  
Collected: 01/25/96 12:19

Category: DW\_PUBLIC

Test Description  
Ion chromatography  
Nitrate, Ion Chrom

Result Det Limit  
01/26/96  
ND 0.06

Units By Analyzed Dt/Tm  
date complete AMH 01/26/96 20:23  
mg/L as N AMH 01/26/96 20:23



Order # 96-01-701

Page 2

02/05/96 12:55

TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: DW Volatiles by GC-MS

Method: EPA 524

Test Code: V\_524

Collected: 01/25/96 12:19

Category: DW\_PUBLIC

PARAMETER	RESULT	LIMIT	UNITS
Dichlorodifluoromethane	ND	0.50	
Chloromethane	ND	0.50	
Vinyl chloride	ND	0.50	
Bromomethane	ND	0.50	
Chloroethane	ND	0.50	
Trichlorofluoromethane	ND	0.50	
1,1-Dichloroethene	ND	0.50	
Methylene Chloride	ND	0.50	
tr-1,2-Dichloroethene	ND	0.50	
1,1-Dichloroethane	ND	0.50	
2,2-Dichloropropane	ND	0.50	
cis-1,2-Dichloroethene	ND	0.50	
Chloroform	ND	0.50	
Bromochloromethane	ND	0.50	
1,1,1-Trichloroethane	ND	0.50	
1,1-Dichloropropene	ND	0.50	
Carbon Tetrachloride	ND	0.50	
Benzene	ND	0.50	
1,2-Dichloroethane	ND	0.50	
Trichloroethene	ND	0.50	
1,2-Dichloropropane	ND	0.50	
Bromodichloromethane	ND	0.50	
Dibromomethane	ND	0.50	
cis-1,3-Dichloropropene	ND	0.50	
Toluene	ND	0.50	
tr-1,3-Dichloropropene	ND	0.50	
1,1,2-Trichloroethane	ND	0.50	
Tetrachloroethene	ND	0.50	
1,3-Dichloropropane	ND	0.50	
Dibromochloromethane	ND	0.50	
1,2-Dibromomethane	ND	0.50	
Chlorobenzene	ND	0.50	
Ethylbenzene	ND	0.50	
1,1,1,2-tetrachloroethane	ND	0.50	
m,p-Xylene	ND	0.50	
o-Xylene	ND	0.50	
Styrene	ND	0.50	
Isopropylbenzene	ND	0.50	
Bromoform	ND	0.50	
1,1,2,2-Tetrachloroethane	ND	0.50	
1,2,3-Trichloropropane	ND	0.50	
n-Propylbenzene	ND	0.50	
Bromobenzene	ND	0.50	
1,3,5-Trimethylbenzene	ND	0.50	
2-Chlorotoluene	ND	0.50	

Order # 96-01-701

Page 3

02/05/96 12:55

TEST RESULTS BY SAMPLE

Sample Description: Chlorine Room

Lab No: 01B

Test Description: BW Volatiles by GC-MS

Method: EPA 524

Test Code: V\_524

Collected: 01/25/96 12:19

Category: BW\_PUBLIC

4-Chlorotoluene	ND	0.50
tert-Butylbenzene	ND	0.50
1,2,4-Trimethylbenzene	ND	0.50
sec-Butylbenzene	ND	0.50
4-Isopropyltoluene	ND	0.50
1,3-Dichlorobenzene	ND	0.50
1,4-Dichlorobenzene	ND	0.50
n-Butylbenzene	ND	0.50
1,2-Dichlorobenzene	ND	0.50
1,2-Dibromo-3-Chloropropane	ND	0.50
1,2,4-Trichlorobenzene	ND	0.50
Hexachlorobutadiene	ND	0.50
Naphthalene	ND	0.50
1,2,3-Trichlorobenzene	ND	0.50

## Notes and Definitions for this Report:

EXTRACTED \_\_\_\_\_  
DATE RUN 02/02/96 06:46:00  
ANALYST ded  
INSTRUMENT \_\_\_\_\_  
FILE ID \_\_\_\_\_  
CONC FACTOR 1  
UNITS ug/L

Order # 96-01-701  
02/05/96 12:55

Page 4

TEST METHODOLOGIES

Total Coliform, MF

SM 9222-B

Nitrate, Ion Chromatography

-Drinking water, wastewater  
-Groundwater, RCRA wastes

Method 300.0  
SW-846 Method 9056



A wholly owned subsidiary of  
Artesian Resources Corporation

- 630 Churchmans Road  
Newark, Delaware
- Silver Lake Plaza, Suite 130  
Dover, Delaware

## ORDER CUSTODY FORM

OC#: 9601701

Total Pages 1

Account #: 70604329

OC Name: January, DW

OC Date:

SAMPLEREPORT

Name: Mr. Dave Thomas  
Company: E.I. duPont de Nemours & Co., Inc.  
Address: Seaford Site  
Fibers - Power  
Seaford, DE 19973

INVOICE

Accounts Payable  
E.I. duPont de Nemours & Co., Inc.  
400 Woodland Rd.  
Seaford, DE 19973  
Mail 2 copies of invoice

Ph#: 1-629-1922

CC: Lynn Salata, Mike Terry

Needed Date: 5-Days

Pricing: 1990 Price List

P.O. #: LB10-4972 Exp. Date 12/30/95

(Mail)

Project: Annual Drinking Water Sampling

Equip. Rent: N/A

Site Time: No charge when collected on Thursday. \$35.00 for special sample collection.

Matrix: DW

Disposal: T-7

Comments: Public Supply. Yearly sampling done in January.

SAMPLES

R	Name	Location	Point	Type	Start D/T	End D/T	Tech	#Cn.	Pr.	D/T	Tech
1	Chlorine Rm			Grab	01/25	1219	Vm		EW		
2				Grab					EW		
3				Grab				2	HY		
4	Field Blk Lot#	01/22/96		Grab				1	HY		
5	Trip Blk Lot#			Grab	01/25	0800	Vm	1	HY		
6	Chlorine Rm			Grab	01/25	1219	Vm		DR		
7				Grab					DQ		

Relinquished by: Vm

Date/Time: 1/25 1815

Received by: B.D. Denny

S	Tests	List Price
1	Total Coliform, MF	\$ 18.00
2	Total Coliform, MF QC-Dup.	--
3	Volatiles (502.2)	150.00
4	Volatiles (502.2) QC	--
5	Volatiles (502.2) QC	--
6	Nitrate -N	15.00
7	Nitrite -N (do not report)	--

Post Office Box 15004  
Wilmington, Delaware 19850  
(302) 453-6920

Post Office Box 935  
Dover, Delaware 19903  
(302) 734-8417



1997





Artesian Laboratories, Inc.  
630 Churchmans Road  
Newark, Delaware 19702  
(302) 453-6920 • 453-6986 (FAX)

**REPORT OF ANALYSIS**

E.I. DuPont deMours & Co.  
Seaford Site  
Fibers-Power  
Seaford, DE 19973  
Attn: Mr. Sonny Clough

Order #: 97-01-517  
Date: 02/10/97 11:35  
Work ID: Annual Drinking Water  
Date Received: 01/31/97  
Date Completed: 02/10/97

Purchase Order: LONS-64361 Acct:1170258  
Invoice Number: 62509

Client Code: DUP\_SEA\_DEP

**SAMPLE IDENTIFICATION**

<u>Sample Number</u>	<u>Sample Description</u>
01	Power House P.O.E.
02	Field Blk

<u>Sample Number</u>	<u>Sample Description</u>
03	Trip Blk

This cover page is an integral part of the analytical report  
that follows.

  
\_\_\_\_\_  
Certified By  
Warren Van Arsdall

Order # 97-01-517  
02/10/97 11:06

Page 1

TEST RESULTS BY SAMPLE

Sample: 01A Power House P.O.E.  
Collected: 01/30/97 11:30

Category: DW\_PUBLIC

Test Description  
Total Coliform, MF

Result Det Limit  
ABSENCE

Units By Analyzed Dt/Tm  
col/100 ml EL 01/31/97 15:36

Sample: 01C Power House P.O.E.  
Collected: 01/30/97 11:30

Category: DW\_PUBLIC

Test Description  
Ion chromatography  
Nitrate, Ion Chrom

Result Det Limit  
01/31/97  
6.57 0.06

Units By Analyzed Dt/Tm  
date complete JJ  
mg/L as N JJ 01/31/97 14:53



Order # 97-01-517

Page 2

02/10/97 11:06

## TEST RESULTS BY SAMPLE

Sample Description: Power House P.O.E.

Lab No: 018

Test Description: Drinking Water Volatiles

Method: EPA 502.2

Test Code: V502

Collected: 01/30/97 11:30

Category: DW\_PUBLIC

PARAMETER	RESULT	LIMIT	UNITS
Dichlorodifluoromethane	ND	0.50	
Chloromethane	ND	0.50	
Vinyl chloride	ND	0.40	
Bromomethane	ND	0.40	
Chloroethane	ND	0.30	
Trichlorofluoromethane	ND	0.40	
1,1-Dichloroethene	ND	0.30	
Methylene Chloride	ND	0.50	
tr-1,2-Dichloroethene	ND	0.40	
1,1-Dichloroethane	ND	0.40	
2,2-Dichloropropane	ND	0.30	
cis-1,2-Dichloroethene	ND	0.40	
Chloroform	1.3	0.30	
Bromochloromethane	ND	0.20	
1,1,1-Trichloroethane	ND	0.50	
1,1-Dichloropropene	ND	0.30	
Carbon Tetrachloride	ND	0.40	
Benzene	ND	0.40	
1,2-Dichloroethane	ND	0.30	
Trichloroethene	ND	0.30	
1,2-Dichloropropane	ND	0.40	
Bromodichloromethane	1.7	0.30	
Dibromomethane	ND	0.30	
cis-1,3-Dichloropropene	ND	0.30	
Toluene	ND	0.20	
tr-1,3-Dichloropropene	ND	0.30	
1,1,2-Trichloroethane	ND	0.20	
Tetrachloroethene	ND	0.40	
1,3-Dichloropropene	ND	0.40	
Dibromochloromethane	1.3	0.30	
1,2-Dibromomethane	ND	0.40	
Chlorobenzene	ND	0.30	
Ethylbenzene	ND	0.30	
1,1,1,2-Tetrachloroethane	ND	0.30	
m,p-Xylene	ND	0.60	
o-Xylene	ND	0.30	
Xylenes, total	ND	0.90	
Styrene	ND	0.30	
Isopropylbenzene	ND	0.40	
Bromoform	ND	0.20	
1,1,2,2-Tetrachloroethane	ND	0.40	
1,2,3-Trichloropropene	ND	0.40	
n-Propylbenzene	ND	0.30	
Bromobenzene	ND	0.20	
1,3,5-Trimethylbenzene	ND	0.30	

Order # 97-01-517

Page 3

02/10/97 11:06

TEST RESULTS BY SAMPLE

Sample Description: Power House P.O.E.

Lab No: 01B

Test Description: Drinking Water Volatiles

Method: EPA 502.2

Test Code: V502

Collected: 01/30/97 11:30

Category: DW\_PUBLIC

2-Chlorotoluene	ND	0.40
4-Chlorotoluene	ND	0.30
tert-Butylbenzene	ND	0.40
1,2,4-Trimethylbenzene	ND	0.50
sec-Butylbenzene	ND	0.10
4-Isopropyltoluene	ND	0.20
1,3-Dichlorobenzene	ND	0.30
1,4-Dichlorobenzene	ND	0.30
n-Butylbenzene	ND	0.40
1,2-Dichlorobenzene	ND	0.30
1,2-Dibromo-3-Chloropropane	ND	0.40
1,2,4-Trichlorobenzene	ND	0.40
Hexachlorobutadiene	ND	0.30
Naphthalene	ND	0.30
1,2,3-Trichlorobenzene	ND	0.40

## Notes and Definitions for this Report:

EXTRACTED

DATE RUN 02/04/97 20:48:00

ANALYST ded

INSTRUMENT

FILE ID

CONC FACTOR

UNITS ug/L

Order # 97-01-517  
02/10/97 11:06

Page 4

TEST METHODOLOGIES

Total Coliform, MF

SM 9222-8

Volatile Organics, Drinking Water -

EPA Method 502.2

Nitrate, Ion Chromatography

-Drinking water, wastewater

Method 300.0

-Groundwater, RCRA wastes

SM-846 Method 9056



## ORDER CUSTODY FORM

A wholly owned subsidiary of  
Artesian Resources Corporation

OC#: 9701517

Total Pages 1

Account #: 70604329

Name: January.DW

Date:

SAMPLEREPORTINVOICE

me: Mr. Sonny Clough  
mpany: E.I. duPont de Nemours & Co., Inc.  
dress: Seaford Site  
Fibers - Power  
Seaford, DE 19973

Accounts Payable  
E.I. duPont de Nemours & Co., Inc  
400 Woodland Rd.  
Seaford, DE 19973  
Mail 2 copies of invoice

H: 1-629-1922

: Mike Terry

ed Date: 5-Days

(Mail)

icing: 1990 Price List

O. #: LBIO-4972 Exp. Date 12/31/97 Project: Annual Drinking Water Sampling

up. Rent: N/A

te Time: No charge when collected on Thursday. \$35.00 for special sample collection.

trix: DW

sposal: T-7

mments: Public Supply. Yearly sampling done in January.

No Flow 1/21/97  
C122m  
No Flow 1/23/97  
No Flow 1/24/97

SAMPLES

Name	Location	Point	Type	Start D/T	End D/T Tech	#Cn.	Pr.	D/T	Tech
Power	House	P.O.E.	Grab	1/30/97	1130 VM		EW		
			Grab				EW		
			Grab			2	HY		
Field Blk Lot#			Grab	1/30/97	1130	1	HY		
Trip Blk Lot#			Grab	1/29/97	1600	1	HY		
Power	House	P.O.E.	Grab	1/30/97	1130		DR		
			Grab				DG		

linquished by: VM Date/Time: 1/30/97 1700 Received by: B.D. Dancy

Tests	List Price
Total Coliform, MF	\$ 18.00
Total Coliform, MF QC-Dup.	--
Volatiles (502.2)	150.00
Volatiles (502.2) QC	--
Volatiles (502.2) QC	--
Nitrate -N	15.00
Nitrite -N (do not report)	--

DISCLAIMER: Liability to Artesian Laboratories, Inc. not to exceed cost of analysis.

Post Office Box 15004  
Wilmington, Delaware 19850  
(302) 453-6920

Delaware Department of Public Health Approved  
Maryland Department of Public Health Certified  
Pennsylvania Department of Environmental Resources Certified

Post Office Box 935  
Dover, Delaware 19903  
(302) 734-8417



## **ATTACHMENT 3**

**Individual production well analysis for inorganics for all production well  
(i.e. 2A, 8, 9, 11, and 12) for the years 1996 and 1997**



B04829 E I DUPONT DE NEMOUR ATT: PWRHSE/SONNY CLOUGH SUSSEX AVE. SEAFORD DE19973	DATE SAMPLED 06/13/96	FU	
	BETZ REPRESENTATIVE TOMOVICH, D. C. 73S	LEGEND CURRENT RESULTS XXX.X MEDIAN XXX.X XX	
		NUMBER OF PREVIOUS RESULTS	

	SAMPLING POINT				
	WELL 2A G0618362H	WELL#8 G0618363H	WELL#11 G0618364H	WELL#12 G0618365H	WELL#9 G0618366H
PH	4.9 5.1 2	4.6 4.0 2	5.1 5.3 2	6.5 5.2 1	4.8 4.8 2
SPECIFIC CONDUCTANCE, 25 DEG C, UMHOS	153 141 2	162 254 2	104 106 2	127 109 1	180 161 2
ALKALINITY, "P" AS CaCO3, PPM	0 0 2	0 0 2	0 0 2	0 0 1	0 0 2
ALKALINITY, "M" AS CaCO3, PPM	L 2 2.0 2	L 2 0 2	3.0 2.0 2	31 2.0 1	L 2 2.0 2
SULFUR, TOTAL, AS SO4, PPM	15.9 16.7 2	32 62 2	11.1 10.7 2	11.6 9.7 1	12.6 12.4 2
CHLORIDE, AS CL, PPM	12.7 15.1 2	L 10 14.1 2	L 10 10.0 2	L 10 10.0 1	22 17.3 2
HARDNESS, TOTAL, AS CaCO3, PPM	33 34 2	40 49 2	22 26 2	25 25 1	35 35 2
CALCIUM HARDNESS, TOTAL, AS CaCO3, PPM	15.6 17.9 2	18.1 23 2	8.4 10.5 2	11.5 10.1 1	17.3 18.1 2
MAGNESIUM HARDNESS, TOTAL, AS CaCO3, PPM	17.3 15.8 2	22 26 2	13.6 15.0 2	13.3 14.5 1	17.2 16.5 2
BARIUM, TOTAL, AS Ba, PPM	0.17	0.15	0.17	0.11	0.18
COPPER, TOTAL, AS Cu, PPM	L 0.05 0.05 2	L 0.05 0.05 2	L 0.05 0.05 2	L 0.05 0.05 1	L 0.05 0.05 2
IRON, TOTAL, AS Fe, PPM	L 0.05 0.1 2	0.07 0.58 2	L 0.05 0.13 2	0.91 5.8 1	L 0.05 0.05 2
SODIUM, AS Na, PPM	9.5 10.0 2	7.8 11.1 2	6.8 6.4 2	10.4 5.3 1	14.5 11.3 2
POTASSIUM, AS K, PPM	2.5	3.0	3.1	2.6	2.9
ALUMINUM, TOTAL, AS Al, PPM	L 0.1 0.2 2	0.7 4.0 2	L 0.1 0.2 2	L 0.1 0.2 1	0.1 0.2 2
MANGANESE, TOTAL AS Mn, PPM	0.030	0.070	0.080	0.20	0.040
NITRATE, AS NO3, PPM	20	18.8	17.7	4.7	23
PHOSPHATE, ORTHO- AS PO4, PPM	L 0.2 0.2 2	L 0.2 0.2 2	L 0.2 0.2 2	L 0.2 0.2 1	L 0.2 0.2 2
SILICA, TOTAL, AS SiO2, PPM	11.2 11.5 2	11.9 11.5 2	9.2 9.0 2	8.5 9.0 1	11.6 11.5 2
SOLIDS TOTAL DISSOLVED MG/L, 105 DEG	68	114	72	78	116

B04829 E I DUPONT DE NEMOUR ATT: PWRHSE/SONNY CLOUGH SUSSEX AVE. SEAFORD DE19973	DATE SAMPLED 06/13/96	FU	
	BETZ REPRESENTATIVE TOMOVICH, D. C. 73S	CURRENT RESULTS MEDIAN	LEGEND XXX.X XXX.X XX NUMBER OF PREVIOUS RESULTS

	SAMPLING POINT				
	WELL#10 G0618367H				
PH	5.0 4.2 2				
SPECIFIC CONDUCTANCE, 25 DEG C, UMHOS	128 98 2				
ALKALINITY, "P" AS CaCO3, PPM	0 0 2				
ALKALINITY, "M" AS CaCO3, PPM	1.2 1.0 2				
SULFUR, TOTAL, AS SO4, PPM	12.7 20 2				
CHLORIDE, AS CL, PPM	110 100 2				
HARDNESS, TOTAL, AS CaCO3, PPM	35 15 0 2				
CALCIUM HARDNESS, TOTAL, AS CaCO3, PPM	14.1 6.9 2				
MAGNESIUM HARDNESS, TOTAL, AS CaCO3, PPM	21 8 1 2				
BARIUM, TOTAL, AS BA, PPM	0.21				
COPPER, TOTAL, AS CU, PPM	L 0.05 0.05 2				
IRON, TOTAL, AS FE, PPM	0.73 0.34 2				
SODIUM, AS NA, PPM	5.2 6.3 2				
POTASSIUM, AS K, PPM	2.7				
ALUMINUM, TOTAL, AS AL, PPM	L 0.1 0.1 2				
MANGANESE, TOTAL AS MN, PPM	0.040				
NITRATE, AS NO3, PPM	25				
PHOSPHATE, ORTHO- AS PO4, PPM	L 0.2 0.2 2				
SILICA, TOTAL, AS SiO2, PPM	13.6 16.0 2				
SOLIDS, TOTAL DISSOLVED MG/L, 105 DEG	116				



Sonny Clough  
Power Plant Supervisor  
DuPont  
Seaford, DE.

**Subject: Review of BetzDearborn Water Analysis for DuPont Seaford Water Systems**

The following report summarizes the water analysis for the DuPont Seaford water systems, as run by the BetzDearborn lab. The following are some basic comments on the enclosed data:

**I. Boiler Systems:**

**A. Feedwater:** Boiler feedwater hardness levels were low, with total hardness running at less than .1 PPM. Iron levels were somewhat elevated at 2.3 PPM. It is possible that the feedwater sample port was not flushed adequately. We will re-check this test.

**B. Boilers:** Power boilers #1 and #3, along with the package boiler were sampled. Boiler #1 showed a very high iron level as well as copper. Boiler #3 did not follow this trend however. Again, I will re-sample the power boilers to trend these levels.

**III. Condensate Systems:** All condensate systems that were sampled did not show any signs of contamination. Both Silica and hardness ions were low. Iron and copper levels were shown to be within historical limits.

**IV. Wells:** Metals (Barium, Aluminum, copper and Iron) were checked for all the wells. During this sampling period, well #10 showed high iron levels at 7.8 PPM. Aluminum, which has shown to be high in the past (well #8), was low in all samples.

**V. Chilled Water:** Analysis of the chilled water showed that the chemical make-up is in line with past water sampling. Iron and hardness levels have not shown any significant variation from the historical data.

Thank You

Don Tomovich

cc: **Chuck Bowden**  
**Wayne Chapman**  
**Ray Hall**  
**Shelia Shannon**  
**Art Fynsk**  
**Ecolochem**



**BetzDearborn****WATER ANALYSIS REPORT**

BB04829  
 E I DUPONT DE NEMOUR  
 ATT: PWRHSE/SONNY CLOUGH  
 Sussex Ave.  
 Seaford, DE 19973

Sampled: 10-APR-1997  
 Reported: 18-APR-1997  
 Field Rep: Tomovich, Don C.  
 BB73S

	LOW IRON WATER H0415235	FEEDWTR H0415236	BOILER#1 H0415238	BOILER#3 H0415237
pH	5.4 4.9 (2)	6.4 6.3 (5)	9.9 10.1 (5)	9.6 8.9 (4)
Specific Conductance, 25 Deg C, umhos	138 146 (2)	6.9 4.5 (5)	203 249 (5)	151 201 (4)
Specific Conductance at pH 8.3, 25 Deg C, umhos			186 238 (4)	146 169 (2)
Alkalinity, "P" as CaCO <sub>3</sub> , ppm	0 0 (2)	0 0 (5)	7.0 16.0 (5)	5.0 2.5 (4)
Alkalinity, "M" as CaCO <sub>3</sub> , ppm	< 2 2.0 (2)	2.0 2.0 (5)	28 46 (5)	23 28 (4)
Sulfur, Total, as SO <sub>4</sub> , ppm	14.0 14.6 (2)	1.7 0.9 (5)	53 48 (5)	39 58 (4)
Chloride, as Cl, ppm	16.0 17.0 (2)	< 0.5 0.5 (5)	1.1 4.8 (5)	0.9 2.3 (4)
Hardness, Total, as CaCO <sub>3</sub> , ppm	32 32 (2)	< 0.1 0.10 (5)		
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	16.2 14.9 (2)	< 0.05 0.05 (5)		
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	15.5 16.1 (2)	< 0.05 0.05 (5)		
Barium, Total, as Ba, ppm	0.18 0.19 (1)			
Copper, Total, as Cu, ppm	< 0.05 0.05 (2)	0.18 0.048 (5)	3.5 0.077 (5)	0.86 0.084 (4)
Iron, Total, as Fe, ppm	< 0.05 0.13 (2)	2.3 0.29 (5)	79 0.94 (5)	13.2 0.81 (4)
Sodium, as Na, ppm	10.6 9.9 (2)	1.4 1.0 (5)	38 46 (5)	30 37 (4)
Nitrate, as NO <sub>3</sub> , ppm	21 25 (1)		< 1 1.0 (5)	< 1 1.1 (4)
Phosphate, Total, as PO <sub>4</sub> , ppm		0.7 0.4 (5)		
Phosphate, Total Inorganic, as PO <sub>4</sub> , ppm	< 0.2 0.2 (1)			

Legend

Result: xxx.x

Median: xxx.x(x) # of previous results

*Shaping the Future of Water & Process Treatment*



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	LOW IRON WATER H0415235	FEEDWTR H0415236	BOILER#1 H0415238	BOILER#3 H0415237
Phosphate, Ortho-, as PO <sub>4</sub> , ppm	< 0.2 0.2 (2)		19.8 21 (5)	15.5 15.6 (3)
Silica, Total, as SiO <sub>2</sub> , ppm	10.9 11.2 (2)	< 0.05 0.05 (5)	0.94 2.5 (5)	0.46 0.82 (4)

Legend

Result: xxx.x

Median: xxx.x(x) # of previous results



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	N COND	S COND
	<u>H0415239</u>	<u>H0415240</u>
Specific Conductance, 25 Deg C, umhos	< 3	< 3
Sulfur, Total, as SO <sub>4</sub> , ppm	< 0.5	< 0.5
Chloride, as Cl, ppm	< 0.5	< 0.5
Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.1	< 0.1
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.05	< 0.05
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.05	< 0.05
Copper, Total, as Cu, ppm	0.012	0.047
Iron, Total, as Fe, ppm	0.058	0.14
Sodium, as Na, ppm	0.004	0.003
Silica, Total, as SiO <sub>2</sub> , ppm	< 0.05	< 0.05



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	SP COND	TURB 2	TURB 3	CHILLED
	<u>H0415268</u>	<u>H0415269</u>	<u>H0415270</u>	<u>H0415271</u>
pH				5.6
Specific Conductance, 25 Deg C, umhos	< 3	< 3	< 3	173
Alkalinity, "P" as CaCO <sub>3</sub> , ppm				0
Alkalinity, "M" as CaCO <sub>3</sub> , ppm				< 2
Sulfur, Total, as SO <sub>4</sub> , ppm	< 0.5	< 0.5	< 0.5	17.0
Chloride, as Cl, ppm	< 0.5	< 0.5	< 0.5	21
Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.1	< 0.1	< 0.1	41
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.05	< 0.05	< 0.05	21
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	< 0.05	< 0.05	< 0.05	19.0
Copper, Total, as Cu, ppm	0.005	0.022	0.033	0.24
Iron, Total, as Fe, ppm	0.15	0.21	0.29	1.4
Sodium, as Na, ppm	0.002	< 0.002	0.003	13.0
Phosphate, Ortho-, as PO <sub>4</sub> , ppm				< 0.2
Silica, Total, as SiO <sub>2</sub> , ppm	< 0.05	< 0.05	< 0.05	15.5



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	DOM	WELL 2A	WELL 8	WELL 9
	<u>H0415260</u>	<u>H0415261</u>	<u>H0415262</u>	<u>H0415263</u>
pH	6.1	5.0	5.0	4.8
Specific Conductance, 25 Deg C, umhos	183	152	132	181
Alkalinity, "P" as CaCO <sub>3</sub> , ppm	0	0	0	0
Alkalinity, "M" as CaCO <sub>3</sub> , ppm	8.0	< 2	< 2	< 2
Sulfur, Total, as SO <sub>4</sub> , ppm	13.7	17.3	21	13.0
Chloride, as Cl, ppm	25	16.4	9.8	27
Hardness, Total, as CaCO <sub>3</sub> , ppm	39	36	33	36
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	22	18.8	16.0	21
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	17.2	16.5	17.3	15.7
Barium, Total, as Ba, ppm		0.17	0.15	0.19
Copper, Total, as Cu, ppm	0.06	< 0.05	0.11	0.07
Iron, Total, as Fe, ppm	2.5	0.14	0.36	0.06
Sodium, as Na, ppm	11.9	10.5	7.4	16.2
Aluminum, Total, as Al, ppm		0.1	0.2	0.2
Nitrate, as NO <sub>3</sub> , ppm	21	21	19.7	24
Phosphate, Total Inorganic, as PO <sub>4</sub> , ppm	0.2	< 0.2	< 0.2	< 0.2
Phosphate, Ortho-, as PO <sub>4</sub> , ppm	0.2	< 0.2	< 0.2	< 0.2





**BetzDearborn**

## **WATER ANALYSIS REPORT**

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	DOM	WELL 2A	WELL 8	WELL 9
	<u>H0415260</u>	<u>H0415261</u>	<u>H0415262</u>	<u>H0415263</u>
Silica, Total, as SiO <sub>2</sub> , ppm	19.0	11.1	11.0	11.5

**BetzDearborn****WATER ANALYSIS REPORT**

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	WELL 10	WELL 11	WELL 12	PACK B
	<u>H0415264</u>	<u>H0415265</u>	<u>H0415266</u>	<u>H0415267</u>
pH	6.2	5.3	5.1	10.0
Specific Conductance, 25 Deg C, umhos	148	112	92	285
Specific Conductance at pH 8.3, 25 Deg C, umhos				269
Alkalinity, "P" as CaCO <sub>3</sub> , ppm	0	0	0	10.0
Alkalinity, "M" as CaCO <sub>3</sub> , ppm	30	5.0	2.0	44
Sulfur, Total, as SO <sub>4</sub> , ppm	13.7	12.8	11.3	79
Chloride, as Cl, ppm	11.4	8.9	8.2	1.7
Hardness, Total, as CaCO <sub>3</sub> , ppm	37	23	19.3	
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	16.9	9.3	8.1	
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	20	13.1	11.1	
Barium, Total, as Ba, ppm	0.23	0.16	0.14	
Copper, Total, as Cu, ppm	< 0.05	< 0.05	0.06	0.079
Iron, Total, as Fe, ppm	7.8	< 0.05	0.57	2.2
Sodium, as Na, ppm	5.6	7.2	6.9	63
Aluminum, Total, as Al, ppm	0.2	0.1	< 0.1	
Nitrate, as NO <sub>3</sub> , ppm	11.1	15.8	14.7	< 1
Phosphate, Total Inorganic, as PO <sub>4</sub> , ppm	< 0.2	< 0.2	< 0.2	



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	WELL 10	WELL 11	WELL 12	PACK B
	<u>H0415264</u>	<u>H0415265</u>	<u>H0415266</u>	<u>H0415267</u>
Phosphate, Ortho-, as PO <sub>4</sub> , ppm	< 0.2	< 0.2	< 0.2	29
Silica, Total, as SiO <sub>2</sub> , ppm	14.4	8.9	9.2	0.78



**BetzDearborn**

## WATER ANALYSIS REPORT

BB04829  
E I DUPONT DE NEMOUR  
ATT: PWRHSE/SONNY CLOUGH  
Sussex Ave.  
Seaford, DE 19973

Sampled: 10-APR-1997  
Reported: 18-APR-1997  
Field Rep: Tomovich, Don C.  
BB73S

	RIVER WATER H0415259
pH	6.2 6.4 (2)
Specific Conductance, 25 Deg C, umhos	100 112 (2)
Alkalinity, "P" as CaCO <sub>3</sub> , ppm	0 0 (2)
Alkalinity, "M" as CaCO <sub>3</sub> , ppm	12.0 11.5 (2)
Sulfur, Total, as SO <sub>4</sub> , ppm	7.6 9.8 (2)
Chloride, as Cl, ppm	16.4 11.0 (2)
Hardness, Total, as CaCO <sub>3</sub> , ppm	29 22 (2)
Calcium Hardness, Total, as CaCO <sub>3</sub> , ppm	16.7 11.8 (2)
Magnesium Hardness, Total, as CaCO <sub>3</sub> , ppm	12.3 9.7 (2)
Copper, Total, as Cu, ppm	< 0.05 0.05 (2)
Iron, Total, as Fe, ppm	3.3 0.47 (2)
Sodium, as Na, ppm	8.1 9.5 (2)
Nitrate, as NO <sub>3</sub> , ppm	12.0 11.2 (2)
Phosphate, Total Inorganic, as PO <sub>4</sub> , ppm	< 0.2 0.2 (1)
Phosphate, Ortho-, as PO <sub>4</sub> , ppm	< 0.2 0.2 (1)
Silica, Total, as SiO <sub>2</sub> , ppm	15.7 9.4 (2)

Legend

Result: xxx.x

Median: xxx.x(x) # of previous results